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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,459	08/29/2001	Alain Houle	CISCP713	7946

26541 7590 05/07/2003

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EXAMINER

FLORES RUIZ, DELMA R

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/942,459

Applicant(s)

HOULE, ALAIN

Examiner

Delma R. Flores Ruiz

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 – 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1 is indefinite since one of ordinary skill in the art would not understand the use of the additional photodetectors since it was stated the exactly one photodetector was needed. Applicant needs to clarify the function of the additional photodetectors and differentiate from the one used for controlling said laser output. Correction is required.

Claims 12 - 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 12 and 17 the recitation "control block" is indefinite since it is unclear to what it is being control, for example, the function of said means could be the frequency control of the laser. The examiner suggests the applicant to clarify by stating the function of the control block. Correction is required.

Claims 1 – 33 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: Claims 1 – 33 for example presents a mere recitation of a group of elements without disclosing how said elements are interrelated in order to perform as an apparatus capable of carrying through any perceptible actions. There is no structural or means recited in the claim, for performing the apparatus, example laser, frequency-selective, photodetector, control block, etc. One of ordinary skill in the art will not understand the apparatus since the components of the apparatus are not clearly stated at the claim as a complete structure. Correction is required.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 5, 12, 15, 16, 23, 26, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Aspell et al (6,337,939).

Regarding claims 1, and 12 Aspell disclose a method and apparatus for controlling an output frequency of a laser, said method comprising; passing optical energy from an output of said laser (see Fig. 4, Character 410) to an optical component having a frequency selective response characteristic; measuring response of said optical component having said frequency selective response characteristic to said optical energy from said laser output using exactly one photodetector (see Fig. 4, Character 440); and controlling (see Fig. 4, Character 450) said laser energy from said measured response and not on measurements from photodetectors other than said exactly one photodetectors ((see Fig. 4, Abstract, Column 4, Lines 4 – 35, Column 5, Lines 66 – 68, Column 6, Lines 1 – 15, 39 – 68, Column 7, Lines 65 – 68, and Column 8, Lines 1, 24 – 34).

Regarding claim 23 Aspell disclose apparatus for controlling an output frequency of a laser, said apparatus comprising; means for passing optical energy from an output of said laser to an optical component having a frequency-selective (see Fig. 4, Character 420) response characteristic (see Fig. 4) means for measuring response of said optical component having said frequency selective (see Fig. 4, Character 420) response characteristic to said optical energy from said laser output using exactly one photodetector (see Fig. 4, Character 440); and means for controlling (see Fig. 4, Character 450) said laser (see Fig. 4, Character 410) output frequency based on said measured response ((see Fig. 4, Abstract, Column 4, Lines 4 – 35, Column 5, Lines 66

– 68, Column 6, Lines 1 – 15, 39 – 68, Column 7, Lines 65 – 68, and Column 8, Lines 1, 24 – 34).

Regarding claims 4, 5, 15, 16, 26, and 27, Aspell disclose a optical component having a frequency-selective response characteristic comprises a fiber Bragg grating (see Fig. 4, Character 420) having notch frequency substantially equivalent to a desired output frequency of said laser (Column 4, Lines 4 – 35 and Column 6, Lines 1 – 15, 39 – 68) and controlling said laser frequency based on said measured response comprises; of said response indicates said laser output frequency is outside a tracking range, sweeping a control signal until said laser output frequency is within said tracking range ((see Fig. 4, Abstract, Column 4, Lines 4 – 35, Column 5, Lines 66 – 68, Column 6, Lines 1 – 15, 39 – 68, Column 7, Lines 65 – 68, and Column 8, Lines 1, 24 – 34).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 6 – 10, 13, 14, 17 – 21, 24, 25, 28 – 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aspell et al (6,337,939) in view of Munks et al (6,353,623).

Regarding claims 2, 7, 13, 18, 24, and 29, Aspell discloses a method and apparatus of wherein controlling said laser output frequency comprises; generating an error signal, (Column 6, Lines 1 – 15, 39 – 68) based on a difference between a measured laser output frequency and a desired laser output frequency; and generating a control signal (see Fig. 4, Character 450) for said laser output frequency based on a sum of said error signal ((see Fig. 4, Abstract, Column 4, Lines 4 – 35, Column 5, Lines 66 – 68, Column 6, Lines 1 – 15, 39 – 68, Column 7, Lines 65 – 68, and Column 8, Lines 1, 24 – 34). Aspell disclose the claimed invention except for the dithering signal. It would have been obvious at the time of applicant's invention, to combine Munks of teaching a dithering signal with controlling an output frequency of a laser because accordingly, a phase sensitive modulator communicates with the dither modulator to demodulate the detected signal for communicating with the error circuit, to ensure operation on the negative positive slope (i.e., in the proper tuning range) or to inform the error circuit of which slope to use in determining the error signal.

Regarding claims 3, 8, 14, 19, 25, and 30 Aspell disclose the method of wherein generating an error signal comprises: sampling said measured response at a first and

second sampling time during a period, and developing said error signal based on a different between sample recorded at a said first and second sampling time ((see Fig. 4, Abstract, Column 4, Lines 4 – 35, Column 5, Lines 66 – 68, Column 6, Lines 1 – 15, 39 – 68, Column 7, Lines 65 – 68, and Column 8, Lines 1, 24 – 34). Aspell disclose the claimed invention except for dithering signal cause an upward fluctuation in said laser output frequency. It would have been obvious at the time of applicant's invention, to combine Munks of teaching a dithering signal cause an upward fluctuation in said laser output frequency with controlling an output frequency of a laser because accordingly, a phase sensitive modulator communicates with the dither modulator to demodulate the detected signal for communicating with the error circuit, to ensure operation on the negative positive slope (i.e., in the proper tuning range) or to inform the error circuit of which slope to use in determining the error signal.

Regarding claims 6, 9,10, 17, 20, 21, 28, 31 and 32, Aspell discloses a methods and apparatus for controlling an output frequency of a laser comprising; passing optical energy from an output of said laser (see Fig. 4, Character 410) to an optical component having a frequency-selective response (see Fig. 4, Character 420) characteristic; measuring response to said optical component having said frequency-selective (see Fig. 4, Character 420) response characteristic to said optical energy from said laser output and a optical component having a frequency-selective response characteristic comprises a fiber Bragg grating (see Fig. 4, Character 420) having notch

frequency substantially equivalent to a desired output frequency of said laser (Column 4, Lines 4 – 35 and Column 6, Lines 1 – 15, 39 – 68) and controlling said laser frequency based on said measured response comprises; of said response indicates said laser output frequency is outside a tracking range, sweeping a control signal until said laser output frequency is within said tracking range ((see Fig. 4, Abstract, Column 4, Lines 4 – 35, Column 5, Lines 66 – 68, Column 6, Lines 1 – 15, 39 – 68, Column 7, Lines 65 – 68, and Column 8, Lines 1, 24 – 34). Aspell disclose the claimed invention except for generating a dithering signal to dither said output frequency of said laser; and controlling said laser output frequency based on said measured response as influence by said dithering signal. It would have been obvious at the time of applicant's invention, to combine Munks of teaching generating a dithering signal to dither said output frequency of said laser; and controlling said laser output frequency based on said measured response as influence by said dithering signal with controlling an output frequency of a laser because accordingly, a phase sensitive modulator communicates with the dither modulator to demodulate the detected signal for communicating with the error circuit, to ensure operation on the negative positive slope (i.e., in the proper tuning range) or to inform the error circuit of which slope to use in determining the error signal.

Claims 11, 22 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aspell et al (6,337,939) in view of Munks et al (6,353,623) further in view of Sugarbaker et al (5,262,843).

Regarding claims 11, 22 and 33 Aspell in view of Munks disclose the claimed invention except for dithering signal comprises a square wave. It would have been obvious at the time of applicant's invention, to combine Sugarbaker of teaching a dithering signal comprises a square wave with method and apparatus for controlling an output frequency of a laser because a dither signal in the form of a square wave phase shift signal is combined with the square wave phase error signal to apply to the phase modulator a phase shift which is equivalent to the Sagnac phase shift and a further phase shift to shift the phase of the intensity signal to a more linear portion of the optical output signal. A dither signal generator introduces a square wave dither signal in the loop at a summing node and also provides a synchronization signal for the peak-to-peak detector.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (703) 308-6238. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3431.



Delma R. Flores Ruiz
Examiner
Art Unit 2828



Paul Ip
Supervisor Patent Examiner
Art Unit 2828

DRFR/PI
April 23, 2003